Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended). A device to synthesize a range of frequencies F1-F2 with high spectral purity, comprising:

a ~~synthesizer with a variable step~~ variable-step synthesizer providing a range of frequencies F3-F4, Na; ~~having a~~

a variable ratio ~~rank~~ divider Nb ~~located after said synthesizer~~; and

a frequency control device adapted for delivering a division rank command of the variable ~~rank~~ ratio divider, a command of the frequency of the variable-step synthesizer, and a command of a synthesis step of the variable-step synthesizer,

wherein the length of the cycle of evolution of Na is variable and dependent on the value of Nb, the variable-step synthesizer is a fractional step phase-locked loop synthesizer.

2. (currently amended). The device according to claim 1 comprising a filtering device positioned after the variable ratio divider ~~variable rank device~~ Nb.

Claim 3 (cancelled).

4. (currently amended). The device according to claim 1 wherein the variable ratio ~~variable rank~~ divider Nb is a value from N1 to Np, the values N1 to Np follow an arithmetic progression, and wherein the maximum frequency of the synthesizer is given by F4=N1*F2 where N1 is the smallest value of the sequence of values N1 to Np and the frequency F3 is a function of N2.

5. (previously presented). The device according to claim 4 wherein the value of the frequency F3 is substantially equal to or slightly lower than (N1/N2)*F4.

6. (currently amended). The device according to claim 1 wherein the variable ratio ~~variable rank~~ divider Nb is a value from N1 to Np, the values N1 to Np following a non-arithmetic progression.

7. (previously presented). The device according to claim 6 wherein F3 is substantially equal to or smaller than a F4 where a is the smallest value obtained in dividing two consecutive values one after the other.

8. (previously presented). The device according to claim 6 wherein the highest division rank Nb is chosen.

9. (previously presented). The device according to claim 1 comprising a mixer receiving an output signal from a fractional step synthesizer and a mixing signal.

10. (currently amended). A method of synthesizing a range of frequencies F1-F2 with high spectral purity using a voltage controlled oscillator, a frequency source which comprises the steps of ~~variable-step range of frequencies F3-F4, comprising~~:

~~transmitting~~ dividing the output signal of the voltage controlled oscillator by a first value ~~variable-step synthesizer to a multiple-rank divider~~ Nb ~~[[Np]]~~, and;

dividing the input signal of the voltage controlled by a second value Na,

wherein the length of the cycle of evolution of Na is variable and dependent on the value of Nb ~~modifying a division rank, a synthesis step of the synthesizer and a frequency of the variable-step synthesizer responsive to receipt of the output signal~~.

11. (currently amended). The method according to claim 10 wherein the value of ~~values~~ Nb varies ~~vary~~ according to an arithmetic sequence N1...Np and wherein the frequency F4 is determined by N1*F2 and the frequency F3 is a function of N2.

12. (previously presented). The method according to claim 11 wherein the value of the frequency F3 is chosen to be substantially equal to or slightly below (N1/N2)*F4.

13. (currently amended). The method according to claim 10 wherein the value of Nb varies according to a non-arithmetic sequence and wherein two consecutive values of the sequence are divided.

14. (previously presented). The method according to claim 13 wherein F3 is substantially equal to or smaller than a F4 where a is the smallest value obtained in dividing two consecutive values of the sequence.

15. (previously presented). The method according to claim 14 wherein the highest division rank Nb is chosen.

16. (previously presented). The method according to claim 10, wherein the modification of the division rank and the synthesis step is simultaneous.

17. (previously presented). The method according to claim 1, wherein a ratio of a reference frequency to the frequency step, is a least common multiple of the sequence N1...Np.

18. (new) The device according to claim 1 wherein reference frequency Fref is chosen so that the desired fractional step values are obtained.

19. (new) The method according to claim 10 wherein the reference frequency Fref is chosen so that the desired fractional step values are obtained as Fref is a function of sequence of the values N1, N2, ... Np assumed by Nb.

20. (new) The method according to claim 10 wherein the reference frequency Fref is chosen so that the desired fractional step values are obtained as follows Fref/ΔF must be a multiple of the LCM of N1, N2, ... Np with ΔF a given frequency step.